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Anderson

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[54] **WATCHBAND CALENDAR WITH JEWELRY-LIKE SURFACE**

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[73] Assignee: **Chicago Etching Corp.**, Chicago, Ill.

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[52] **U.S. Cl.** **40/107**, 40/21, 40/137, 51/110

[51] **Int. Cl.** **G09d 3/00**

[58] **Field of Search** 40/107, 21, 137; 51/110; 29/173; 72/112

[56] **References Cited**

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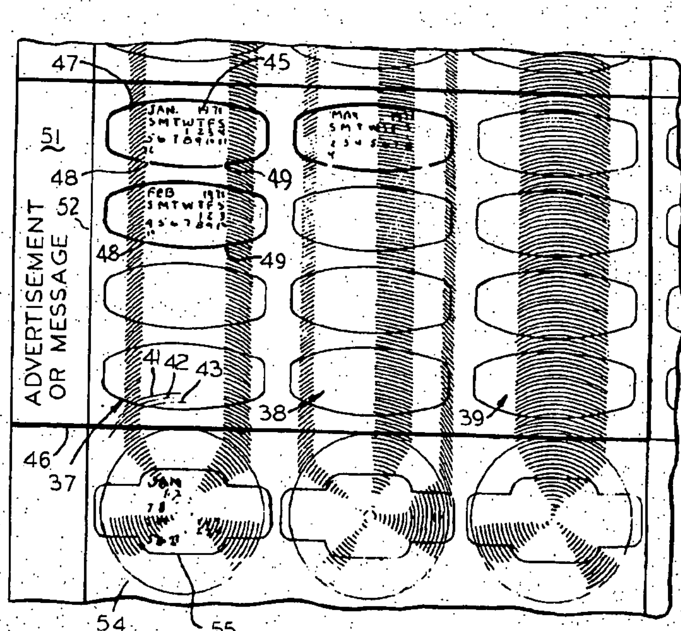
[57] **ABSTRACT**

A sheet of metal is abraded by a spinning disk while the sheet is moved longitudinally with respect to the disk. The disk thereby forms an elongated pattern of nested hyperbolic or somewhat semicircular lines. These score lines provide a background of light reflecting areas which change and move as the watchband tilts and tips with normal wrist movement.

6 Claims, 5 Drawing Figures



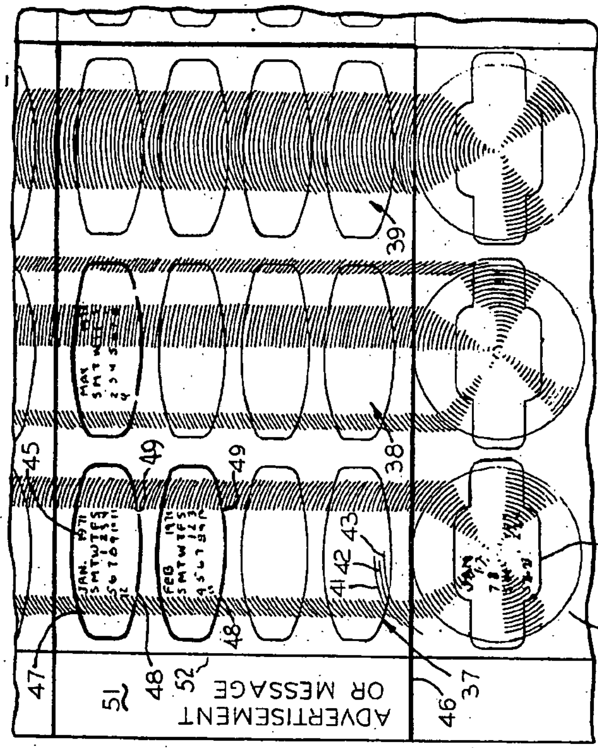


FIG.4

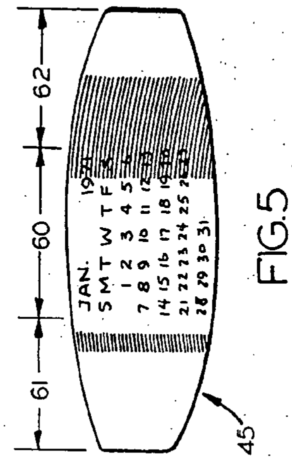


FIG.5

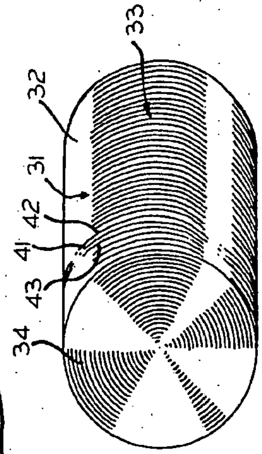


FIG.3

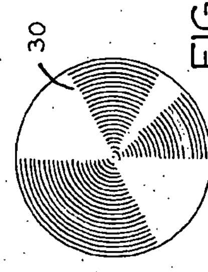


FIG.2

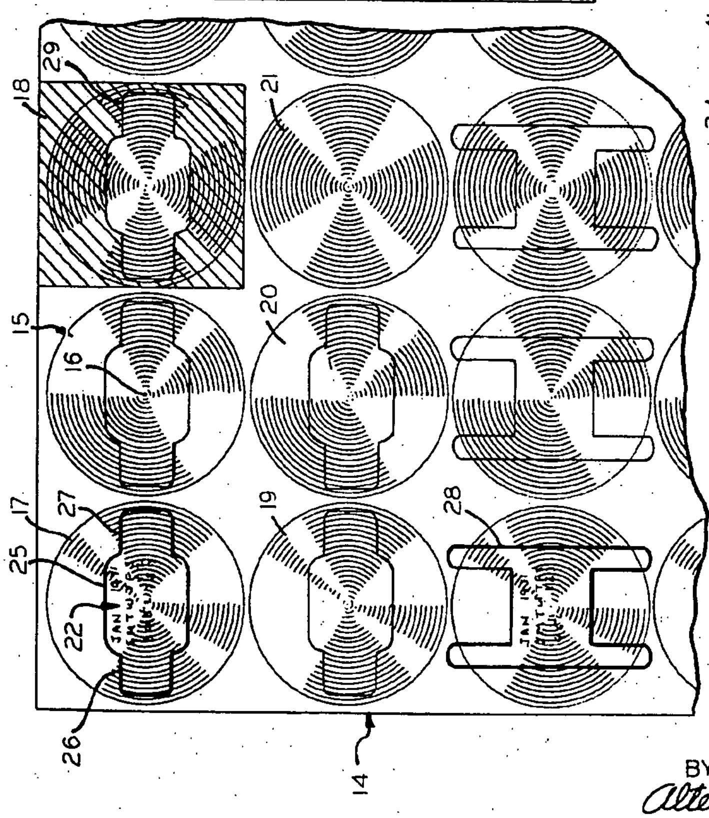


FIG.1

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WATCHBAND CALENDAR WITH JEWELRY-LIKE SURFACE

This invention relates to processes for highlighting the indicia on watchband calendars, and more particularly to processes for providing high volume, low cost watchband calendar production with maximum metal utilization.

Reference is made to a copending patent application (now U.S. Pat. No. 3,603,014) originally filed July 31, 1967, by Walter A. Schomburg, and assigned to the assignee of this application. That Schomburg patent shows a process for making a watchband calendar having a jewelry-like surface appearance. More particularly, a spin finish is applied to a thin metal sheet, before a calendar is printed thereon. The spin finish appears when the metal surface is abraded by rotating a resiliently ended, spinning device against the surface of the metal, while a grit material is positioned between the end of the device and the surface. For example, this could be a small circular disk of sandpaper, or the like; or, it could be a felt or rubber disk rubbing against a loose grit sprinkled over the surface of the metal.

The abrasion forms a plurality of generally concentric score lines with the center point of scoring substantially coinciding with the axis of the spinning shaft. The sheet of spin finished metal is then formed on a punch press, for example, into a central panel with the center point of the score lines positioned at approximately the center of the panel. At least one tab is integrally formed on said central panel and dimensioned to at least partially wrap around a wristwatch band. Next, a calendar is imprinted on the scored panel with the center of the calendar located at approximately the center point of the score lines. When the watch calendar is mounted on a wristwatch band, the normal wrist motion causes a variation in highlighting at different areas of the panel and calendar.

The Schomburg process makes a beautiful watchband calendar which has achieved a wide spread success with substantial commercial recognition. However, there is room for improvement of certain features of the Schomburg process. More particularly, the positioning of the spin finish tends to require a precision in production which enhances costs, rejection, and worker skills. Moreover, the spin finish tends to use an unduly large amount of material.

Accordingly, an object of the invention is to provide a new and improved process for applying a jewelry-like finish to watchband calendars. Here, an object is to provide for a continuous run production process which does not require an unnecessarily high degree of labor skill. Moreover, an object is to reduce the amount of metal required to make the watchband calendars.

Yet, another object of the invention is to provide a different type of jewelry-like finishes, as compared with the Schomburg type finish. Here, an object is to provide another in a family of surface finishes.

A further object is to provide a calendar, with a jewelry-like finish which can be manufactured and shipped in a compact manner, without requiring an undue amount of handling. Here, an object is to provide a year's (or a similar period) calendar supply in a single sheet, which may be mailed or otherwise sold or distributed as easily as a postcard, and without requiring either special handling or special packaging.

In keeping with an aspect of the invention, these and other objects are accomplished by abrading a sheet of metal by a spinning disk while the sheet is moved longitudinally, with respect to the disk, during the abrasion. The spinning disk thereby forms an elongated pattern of nested hyperbolic or somewhat semicircular score lines, which reflect linear bands of light that move and shift as the abraded metal is tipped or tilted. A year's (or any other convenient time span) supply of monthly calendars are printed over the score lines. Thus, behind the calendars, the score lines provide a background of light reflecting areas which change as the watchband tilts and tips with normal wrist movement.

The nature of a preferred embodiment of the invention for accomplishing these and other objects of the invention may be understood best from a study of the attached drawing, wherein:

FIG. 1 is a graphical representation which shows the Schomburg method of scoring for enhancing a watchband calendar;

FIG. 2 is a graphical representation of the basic spin finish used in production of the watchband calendar of FIG. 1;

FIG. 3 is a graphical representation which shows a drag spin finish used in the inventive process;

FIG. 4 is a plan view which shows a sheet of calendars made by the inventive process; and

FIG. 5 shows a calendar for a single month, which has been snapped out of the sheet of FIG. 4 and is now ready to attach to a watchband.

The prior art, Schomburg process for making watchband calendars with a jewelry-like finish, is best seen in FIG. 1. Here, a sheet of aluminum **14** (or other suitable material) has a number of discrete spin finished areas formed thereon. For example, one such discrete spin finished area is formed at **15**. This finished area is made by a rotating or spinning device held against the metal surface. The device has a resilient end with grit, or other abrasive material, positioned between the resilient end and the metal surface. It is not too important whether the grit is loose or is attached to a sheet of backing material. The concentric score lines are formed about a central point **16**, coinciding with the shaft axis.

A plurality of such shafts may be aligned, side-by-side, to raise and lower simultaneously. Thus, a plurality of such drag spun areas are simultaneously formed in multiple side-by-side relationship. By way of example, FIG. 1 shows an exemplary three such areas **15**, **17**, and **18** formed side-by-side preferably in a single multiple, spinning operation. After the first multiple of three patterns, **15**, **17**, and **18** are so formed, the spinning shafts are raised. Then, the sheet **14** of metal is advanced by an indexed distance, and the three shafts are again lowered to form a new multiple of spun areas **19–21**. In a similar manner, the shafts are repeatedly raised and lowered, with the metal sheet advanced each time to form a new spin finished area.

Thereafter, a calendar **22** for one month is printed on each of the spun areas. The calendar is centered upon the center of the score lines to enhance the overall appearances.

Then, the calendar is punched or stamped out of the sheet of metal in any suitable geometric form. For ex-

ample, the stamped calendar **22** is in the form of a central panel **25**, having two tab ends **26, 27** formed integrally therewith. The tab ends **26, 27** bend around a watchband to hold the calendar in place. In other modifications, the stamped out calendar may have any other suitable shape, such as an H-frame **28**. The end product is made more handsome by the light reflective background.

There are three areas where the cost of this spin finished calendar may be made less costly. First, the three step cycle of raising the spinning shafts, indexing the metal sheet **14**, and lowering the shafts requires above average production worker skill, time, and attention. Even with the higher skill levels, there is still a considerable chance for production errors and a resulting waste of end product. Second, there is a substantial waste of metal. Thus, the maximum width of the watchband sets the minimum diameter of the spin finish, which results in a greater waste than utilization of the metal. For example, spin design area **18** has been cross hatched to identify the wasted portion of metal required to produce a watchband calendar **29**, for a single month. Third, the wasted material inherently requires the calendars to be completely separated from the sheet of metal **14**, since the dimensions of a sheet required for a full year's supply of calendars is too large to be practical. This separation into discrete calendars leads to separate packaging and much handling, so that a year's supply of calendars may be assembled and sold as a unit.

In keeping with an aspect of the invention, these areas of cost have been reduced, while maintaining the jewelry-like finish and providing another in a family of products. In greater detail, FIG. **2** is a graphical representation of a spin finish, as applied in the manner taught by Schomburg. When a piece of metal having this finish is tipped and tilted, the reflected light rotates around the score lines **30** and appears somewhat as the blurred image of a spinning propeller.

FIG. **3** is a graphical representation of a drag spin. Here the rotating shaft is lowered onto and moved, in direction A, linerally across the metal to form nested score lines **31**, which are spaced parallel portions of a somewhat semicircular or hyperbolic arc or a segment thereof. An exemplary three of the nested score lines are numbered **41, 42, 43**. A linear drive table is preferably used to move the plate uniformily and without any discontinuing of motion, so that the lines will be uniformily spaced. When a plate having these nested score lines is tipped and tilted, bands of reflected light **32** and darkness **33** sweep longitudinally across the calendar face. The optical effect is somewhat similar to the optical effect in a tiger's eye jewel stone. At the end of the drag spin finish, the circular spin finish **34** appears at the point where the spinning shaft breaks away from the surface, as it is lifted away.

A plurality of spinning shafts may be placed side-by-side to create a plurality of drag spin patterns, as seen in FIG. **4**. Here shown are three parallel strips of drag score lines **37, 38, 39**, each having a number of nested score lines formed in spaced parallel semicircular or hyperbolic arcs (as seen at **41, 42, 43**). Any suitable number of drag spin designs may be formed simultaneously.

The spun sheet is cleaned, and a full supply of discrete monthly calendars is printed thereon, with the printing centered on the score lines of the drag spin design, preferably so that the highest point of the hyperbolic arch is centered at the top of the calendar. However, the calendars may also be rotated with respect to the score lines, in some convenient amount, such as 90°, for example. Here, for example, a January calendar is seen at **45**. Other calendars may also be printed in any convenient groups, such as; 3, 6, 12, 15, or 18 month supplies. Thus, by way of example, a heavily inked rectangle **46** encloses 12 calendars, preferably printed in rows and columns, which is a year's supply. The calendars may be printed as closely together as is practical, thereby minimizing wasted scrap metal between the calendars.

Next, the sheet of metal is coated with either a clear or gold and transparent lacquer to give a silver or gold surface appearance. For other effects, any suitable colored lacquer may also be used.

Then, the sheet of metal is placed under the die of a punch press or in a similar machine, and a semi-piercing die stamps out the entire perimeter around each of the calendars, except for one or more hinge areas. For example, a heavy inked line **47** is shown around the perimeter of the calendar **45** with two small broken segments at **48, 49**. The heavy line **47** indicates where the calendar is cut, and the segments **48, 49** indicate where hinge portions are formed. The die which cuts along the line **47** may also be arranged to weaken the hinge segments **48, 49**, to insure easy breakage. In a similar manner, the perimeter around each of the other calendars is pierced, except for the small hinge portions.

The metal sheet **14** is also severed along line **46** at the same time. Hence, the large sheet of metal **14** is severed, as along line **46**, into a number of small discrete sheets of metal, each of which is approximately the size of a postcard. Each small sheet contains a full supply of calendars which are cut out, and ready to be snapped out, as they are used. If a smaller supply of calendars are used, the perimeter **46** may be reduced to approximately the size of a business card carrying say three or four calendars. For larger supplies, the perimeter **46** may be increased.

Depending upon the customer's needs, the cutout card **46** may also contain advertisement or any other messages at a tab end **51**. As here shown, the tab end does not have a spin finish; however, it is also within the scope of the invention to apply a spin finish this end. This tab end with a spin finish is particularly attractive when the end is in the form of a business card, which may be snapped off at **52** and kept.

The circular disk-like spin finished area **54**, where the abrasive disks are lifted off the sheet **14** may be used as a background for a discrete calendar **55**, constructed according to the Schomburg's teaching.

FIG. **5** shows a single, discrete, month's calendar **45**, which has been snapped out of the sheet **46**. To use the calendar **45**, the area **60** is placed over and the tab ends **61, 62** are bent around the watchband.

Briefly, in resume, it is seen that the invention retains the jewelry-like appearance, maximizes metal usage and minimizes metal waste. A full year's supply is small and compact, and may be as small as, say, a postcard,

thereby eliminating the need for separate packaging of discrete elements. It also enables advertising, business card, and similar display. The production costs less since the need for intermittent hand labor with accurate indexing is reduced. Still other advantages will readily occur to those who are skilled in the art.

The invention is subject to various modification. For example, the foregoing specification has spoken of sheets of metal such as aluminum (which may be 0.012 inch thick), for example. However, any other suitable metal, such as steel, bronze, or the like, may also be used. Moreover, the calendar may be rotated with respect to the score lines, as by 90°, for example. Therefore, the appended claims are to be construed to cover all equivalent structures.

I claim:

1. A wristwatch calendar product made by the process of:

a. forming a drag spin finish on a thin sheet of bright metal by abrading said bright metal with a rotating spinning device held against the surface of said metal with an abrasive material positioned between the end of said device and said surface, whereby said abrassion forms a plurality of generally concentric score lines with a center point of scoring substantially coinciding with the axis of said spinning device,

b. linearly and uniformly moving said sheet of metal relative to said spinning device while said device is held in contact with and is abrading said surface whereby a linear drag spin pattern of nested hyperbolic score lines are formed on said surface,

c. imprinting at least one calendar on said surface with a linear center of said calendar being located at approximately the linear center of said nested hyperbolic score lines, and

d. forming said drag spin finished sheet of metal into a central panel with at least one tab integrally

formed on a side of said central panel, the linear centers of said calendar and said score lines being positioned at approximately the linear center of said panel, and said panel and tab being dimensioned to at least partially wrap around a wristwatch band, whereby when said watch calendar is mounted on a watchband, the normal wrist motion causes a linear variation in highlighting reflections to sweep across different areas of said panel and calendar.

2. The product made by the process of claim 1 and the added step of:

e. forming a transparent protective coating over the surface of said panel, score lines, and calendar.

3. The product made by the process of claim 1 and the added steps of:

f. forming a plurality of said linear drag spin patterns of hyperbolic score lines with each of said patterns being positioned in spaced parallel relationship to each other, and

g. imprinting a plurality of calendars in longitudinally aligned rows or columns along the lengths of said drag spin nested score lines.

4. The product made by the process of claim 3 wherein step (d) comprises the further step of semipiercing said sheet of metal to stamp out each individual calendar while retaining an easily broken hinge segment connection between said sheet and each of said calendars.

5. The product made by the process of claim 4 and the further step of separating said sheet of metal into discrete cards, each containing a plurality of monthly calendars.

6. The product made by the process of claim 1 wherein a circular spin finish appears at the end of said linear movement of step (b) and the further step of forming a discrete calendar panel at the center of said circular spin finish.

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